

## Pamet River Subwatershed Truro, Cape Cod, Massachusetts

The Pamet River Subwatershed is located in Truro. It has an area of 2,615 acres. Truro has the lowest population density on the Cape, at 84 people per square mile. The 1999 tax rate was also the lowest on the Cape, at 7.6%. Route 6 runs north-south through the center of this watershed and the Pamet River bisects it east-west. The central portion of the watershed is dominated by town development and the eastern and southern portion is part of the Cape Cod National Seashore. Pamet Harbor opens into Cape Cod Bay. There are no municipal water or sewer systems in the watershed.

Pamet Harbor was once a viable commercial port that served a large fleet of fishing vessels operating in the cod and mackerel industry. The fishing industry is not as active, leading residents to alter the Pamet in hopes of restoring and increasing the capacity of the harbor. The alterations of the Pamet have divided the river into two distinct hydrological sections, the upper Pamet and the lower Pamet. East of the tide gate located just west of Route 6, the upper Pamet is freshwater. Many upland species of salt-intolerant plants have invaded the area. The upper Pamet flows slowly west and enters into the lower Pamet, a saltmarsh estuary. The lower Pamet is an intertidal estuary and is stressed by past alterations that have reduced natural tidal circulation and in turn increased shoaling and sedimentation. Restoring tidal flow to the upper Pamet River would provide many benefits, including increased natural flushing in the estuary that would in turn improve water quality, maintain habitat diversity, and balance sediment loads in the Pamet River Valley.

Continual siltation of Pamet Harbor is an ongoing issue for the town. By the mid 1990's, Pamet Harbor had been neglected for almost 30 years. Despite dredging projects in 1996 and 1998, the harbor is in a state of being shoaled in and inaccessible to boats except during 2 ½ hours on either side of high tide. Proposed actions include more dredging or developing an engineering plan to remove sand from the harbor's south jetty. The build-up around the jetty is believed to be a major factor contributing to the amount of sand entering the harbor.

Pamet River is one site in a 2001 Woods Hole Oceanographic Institution (WHOI) study of subsurface groundwater pathways to coastal embayments. Results show that the primary source of nitrogen in the Pamet Estuary is from groundwater.

Most of the land within the Town of Truro is protected open space. 9,400 acres, or about 70% of the town falls within the Cape Cod National Seashore and is protected from further development. The Truro Conservation Trust owns 240 acres. Three undeveloped properties located in the town but outside of this subwatershed have an unclear future in terms of open space. The areas are the Walsh property (about 64 acres), the Noons property (about 55 acres) and the Perry property (about 39 acres). It is projected that Truro will reach 100% buildout within the next 15 years.

### Stewards:

- Truro Neighborhood Association
- Truro Forum

### Studies conducted in the watershed:

- Investigation of the Effects of Groundwater Withdrawals from the Pamet and Chequesset Aquifers, Cape Cod National Seashore. 1992. National Park Service, Water Resources Division.

- Technical Opinion on Effects of Groins along Truro Shoreline. September, 1995. Jim O'Connell, Massachusetts Coastal Zone Management. The report analyzed the effects of the groin in front of the Seaside Village Motel.
- Pamet River Investigation: Groundwater Assessment Study, Truro, MA. May 1997. Cape Cod Commission Water Resources Office.
- Pamet River Investigation, Truro, Mass. 1998. US Army Corp of Engineers.
- Water Resources Management Plan, Cape Cod National Seashore. September 1999. P. Godfrey, K. Galluzzo, N. Price, Massachusetts Water Resources Research Center, UMass-Amherst; and J. Portnoy, Cape Cod National Seashore.
- Pamet Harbor/River Assessment Project. Assesses the impacts that storm drains and non-point source pollution have on Pamet Harbor shellfish bed closures. Funded by a Coastal Pollutant Remediation grant, Year 2000.
- Pamet River is one site in a 2001 WHOI study of subsurface groundwater pathways to coastal embayments.
- Cape Cod Atlas of Tidally Restricted Salt Marshes. 2001. Cape Cod Commission.
- Hydrologic Analysis of the Water Resources of Lower Cape Cod. US Geological Survey. Conducted during 2001-2003.
- Truro's Upper Pamet River: Environmental History and Future Prospects. 2002. J. Portnoy. Environment Cape Cod.

#### Who is collecting water quality data and where:

- Unknown

#### Management actions taken:

- The town and state spent a combined \$600,000 on two dredging projects in Pamet Harbor in 1996 and 1998 to make the harbor more accessible to boats.
- The Massachusetts Wetlands Restoration Program is determining the feasibility of a 140-acre salt marsh restoration project on the Pamet River. A tide gate prevents tidal flows from entering the area between Route 6A and Ballston Beach. The vegetation community in this area is now fresh water shrub, with large portions transitioning to shrubby upland. This project would be one of the largest in Massachusetts. Preliminary restoration design by the Army Corps of Engineers.
- The gasoline tank at Jack's Gas was found to be leaking in 1998 and was removed. In 1999 test wells were dug to monitor the extent of the gasoline spilled from the tank, since testing the previous year indicated that a significant amount of gasoline had entered the water table.
- The Truro Board of Health was awarded a Wellhead Protection Grant to conduct three hazardous waste collection days and to develop and distribute hazardous material public information. Their project targets the protection of the Provincetown wells located in Truro. 2002.
- Massachusetts Division of Fisheries and Wildlife stocks Pamet River with brook trout.

**Subwatershed facts:** (For data sources see Appendix)

- 21 E sites: 1 – Jack’s Gas
- Solid waste sites: 1
- Zone IIs located in this watershed: none
- Interim Wellhead Protection Areas (IWPAs): 6
- Percent of the undeveloped land that is protected (according to 1985/1990 data): 72%
- Acres of existing wetlands: 435
- Certified vernal pools: 0 (there is 1 in Truro, outside of this subwatershed).
- Named freshwater ponds: Mill
- Named rivers or creeks: Pamet River
- 1998 Massachusetts 303(d) List of Impaired Waterbodies: A section of the Pamet River, from Route 6 to the mouth at Cape Cod Bay (including Pamet Harbor) – pathogens. Ryder Pond – nutrients and organic enrichment/low dissolved oxygen.
- Shellfish growing areas: Pamet Harbor is conditionally approved for shellfish harvesting. Pamet River is under a conditional closure for management reasons.
- This watershed contains Natural Heritage and Endangered Species Program (NHESP) Estimated Habitats of Rare Wildlife.

**Priorities:**

- Initiate water quality monitoring program in Pamet Harbor for nutrients and bacteria to participate in the Estuaries Project, Southeastern Massachusetts Embayment Restoration. Work with Estuaries Project to develop a QAPP.
- Secure funding for Pamet River saltmarsh restoration project. \$1 million estimated construction cost.
- Implement those salt marsh restoration projects identified in the 2001 *Cape Cod Atlas of Tidally Restricted Salt Marshes* that have been evaluated and prioritized by the town. Sites are: Old County Road restriction of Eagle Neck Creek (Site TR-1), Mill Pond Road restriction of channel to Mill Pond (TR-2), Restrictions of the Pamet River by Truro Center Road/Route 6A (Wilder Dike) (TR-3) and by Route 6 (TR-4), and Dirt berm crossing of unnamed channel in the Pamet Marshes (TR-5).
- Use the USGS Groundwater Modeling Study to identify and acquire land for future water supply sites.
- Support projects recommended in the Water Resources Management Plan of the Cape Cod National Seashore (1999) (p. 134-149).

**Recreation:**

Camping areas: none

Golf courses: none

Pathways and trails:

- Cranberry Bog Trail
- [www.capecodcommission.org/pathways/trailguide.htm](http://www.capecodcommission.org/pathways/trailguide.htm)

Public access:

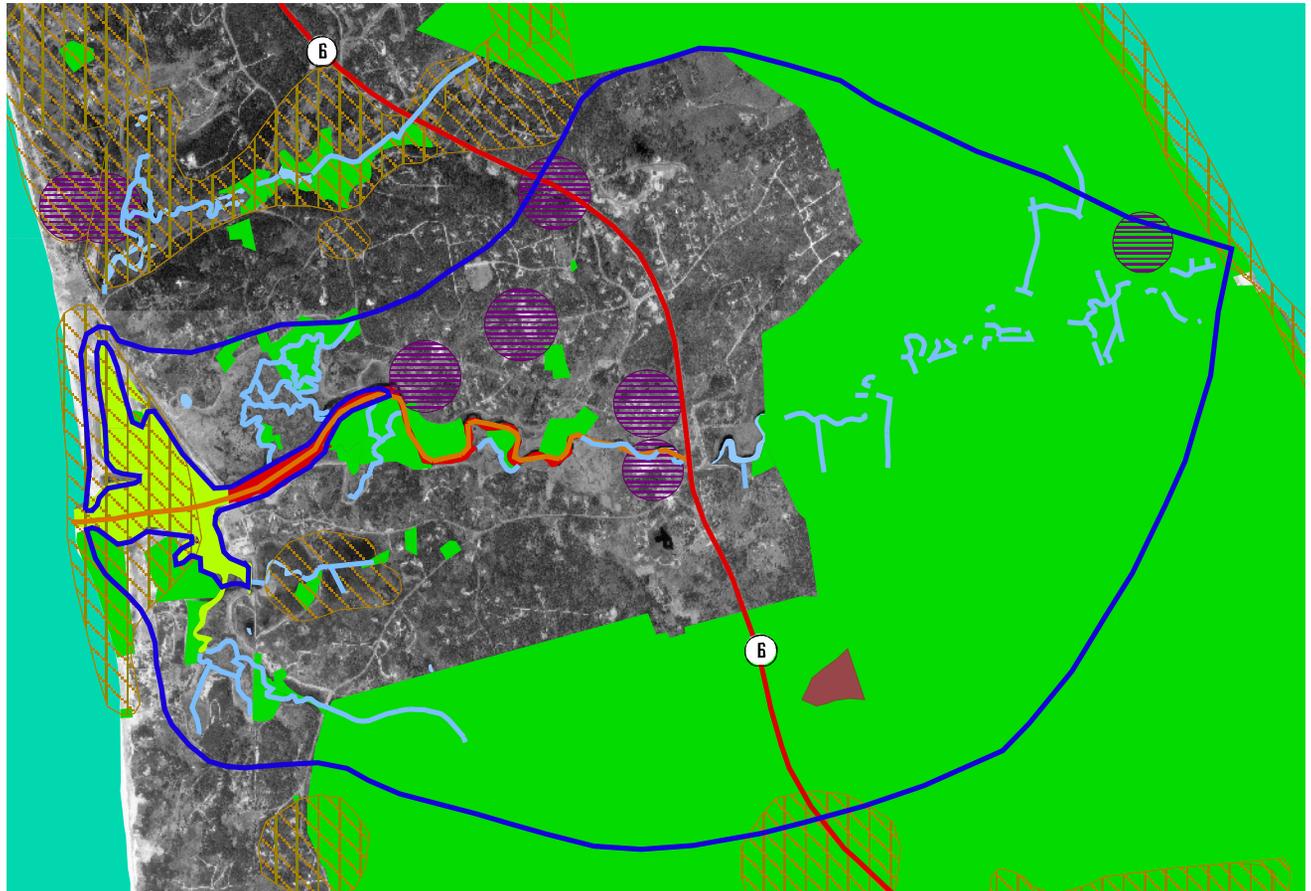
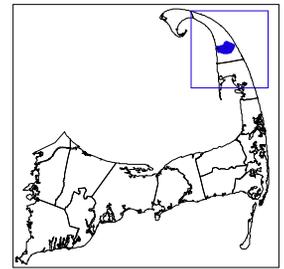
- [www.state.ma.us/dfwele/pab/pabSEmap.htm](http://www.state.ma.us/dfwele/pab/pabSEmap.htm)

Public beaches and landings:

- Ballston Beach
- Boat ramp in Pamet Harbor

# Pamet River

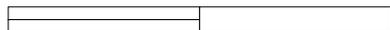
Truro, MA



## Watershed Resources



0 0.5 1 Miles



### Natural Heritage and Endangered Species Program Data

- Certified Vernal Pool
- Priority Habitats of Rare Species
- Estimated Habitats of Rare Species

### Groundwater Protection Areas

- Interim Wellhead Protection Area
- Zone II
- Solid Waste Facility

Watershed Boundary

Anadromous Fish Run

### Shellfish Growing Areas

- APPROVED
- CONDITIONALLY APPROVED
- MANAGEMENT CLOSURE
- PROHIBITED
- RESTRICTED
- Open Space

Streams

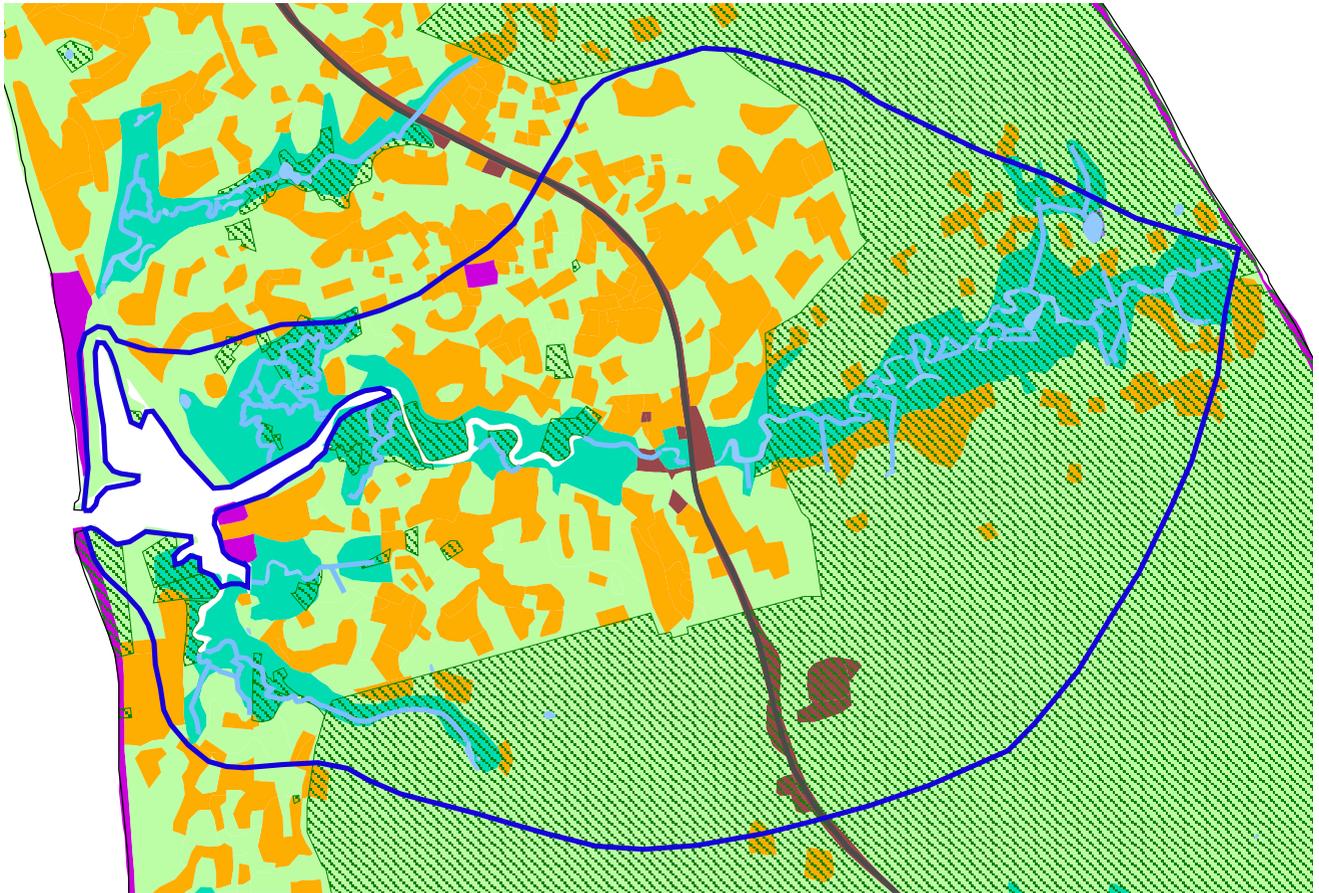
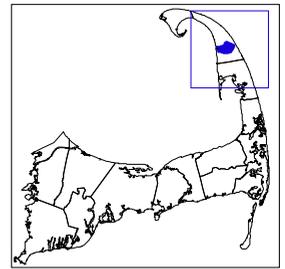
Ponds

Roads



# Pamet River

Truro, MA



## Land Use



0 0.5 1 Miles



## Land Use

